Advantech Linux 2.2

User Manual

For 2.4 Kernel

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About Advantech Linux 2.2

Advantech Linux 2.2 is an embedded Linux developed for Advantech products ,has two kernels :2.4 and 2.6 version. Advantech Linux using kernel 2.4 is a migration production from RedHat 9.0. The minimum text mode and graph mode can be installed in the storage medium of 40M and 50M relatively. Its major functions include: all system-required shell commands, http server, ftp server, telnet, mail client, dhcp client, graph operation environment based on X-window.

Advantech Linux 2.2(using kernel 2.4) does not offer developing environment. User can develop the environment with redhat 9 and transplant the develop results to Advantech Linux2.2.

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Install Advantech Linux 2.2

1.1 System Requirements

Before the installation, the user should make sure that the system is ready to meet the requirements of installation. Extra attention should be given to the following items:

(1) If other operating system have already been installed in computer and the user should determine whether Advantech Linux can remains in the computer together with other operating systems previously installed. The user should know the system partition of the previous system.

(2) The number and size of storage medium. The user should make sure that there is sufficient space for Advantech Linux.

(3) The size of memory. This has a straight influence on the installation and performance of the system.

1.2 Prepare for installation

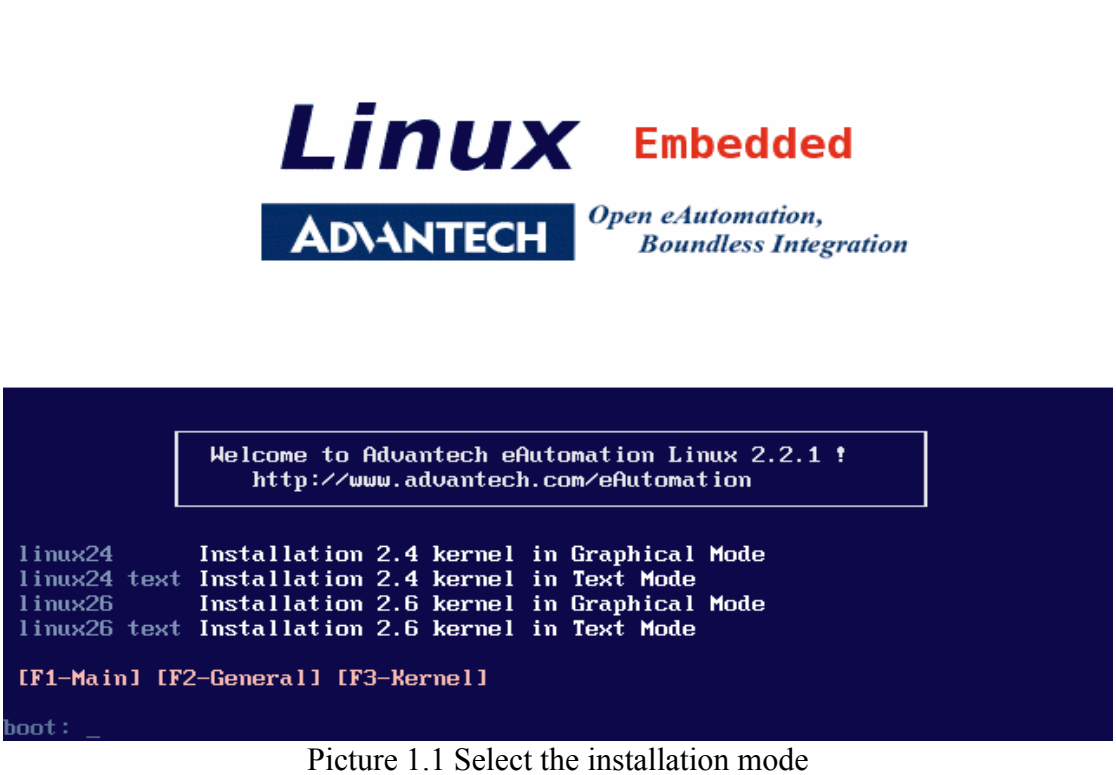
We suggest that the user make a copy of data in storage medium in order to prevent data damage in case of improper operation during installation.

Advantech Linux 2.2 is released with one disk only.

(1) Boot the machine from cdrom . Insert the disk of Advantech Linux2.2 into the cd driver, sets the BIOS to boot from cdrom and reboot the computer.

Note: Connect to an external CD driver by an IDE or USB cable if there is no CD driver in the computer.

(2) Select the installation mode as shown below.


Linux Embedded
ADVANTECH Open eAutomation, Boundless Integration
Welcome to Advantech eAutomation Linux 2.2.1 !
http://www.advantech.com/eAutomation
linux24 Installation 2.4 kernel in Graphical Mode
linux24 text Installation 2.4 kernel in Text Mode
linux26 Installation 2.6 kernel in Graphical Mode
linux26 text Installation 2.6 kernel in Text Mode
[F1-Main] [F2-General] [F3-Kernel]
boot: _

Picture 1.1 Select the installation mode

When the computer has been booted from the disk successfully, the above picture will be shown for the user to select the installation mode.

If you want to install advantech linux with 2.4 kernle:

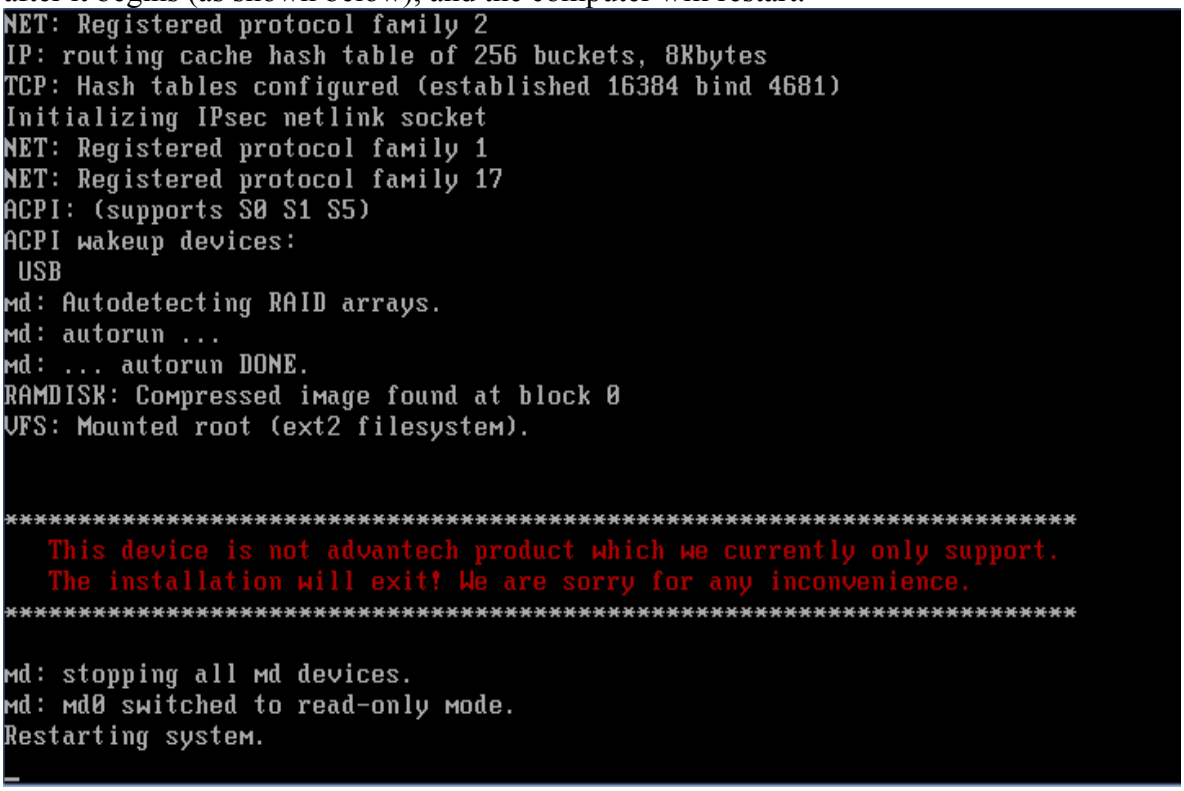
Type “linux24” and press Enter or Press Enter directly to turn into the graph installation mode.

Type “linux24 text” and press Enter to turn into the text installation mode.
Note:

(1) If the memory size of the computer is not less than 128M, the graph installation mode is recommended. If the memory of the computer is less than 128M, then the text installation mode is recommended.

(2) The user can type additional parameters here to customize the installation operation for the computer. Press F2 and F3 for the help.

(3) If the computer is not produced by Advantech, the installation will stop soon after it begins (as shown below), and the computer will restart.


NET: Registered protocol family 2
IP: routing cache hash table of 256 buckets, 8Kbytes
TCP: Hash tables configured (established 16384 bind 4681)
Initializing IPsec netlink socket
NET: Registered protocol family 1
NET: Registered protocol family 17
ACPI: (supports S0 S1 S5)
ACPI wakeup devices:
USB
md: Autodetecting RAID arrays.
md: autorun ...
md: ... autorun DONE.
RAMDISK: Compressed image found at block 0
VFS: Mounted root (ext2 filesystem).
This device is not advantech product which we currently only support.
The installation will exit! We are sorry for any inconvenience.
md: stopping all md devices.
md: md0 switched to read-only mode.
Restarting system.

Picture 1.2 Exit the installation procedure

1.3 Graphical installation mode

Step 1: If the graphical installation mode is selected, the following picture will be shown. Please follow the introductions step by step to complete the installation.

ADVANTECH
Welcome to Advantech Linux
During this installation, you can use your mouse or keyboard to navigate through the various screens.
The Tab key allows you to move around the screen, the Up and Down arrow keys to scroll through lists, + and - keys expand and collapse lists, while Space and Enter selects or removes from selection a highlighted item. You can also use the Alt-X key command combination as a way of clicking on buttons or making other screen selections, where X is replaced with any underlined letter appearing
Embedded Linux
Hide Help
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Picture 1.3 Welcome picture

Read the help message on the left of the welcome interface. Press <next> to continue the installation.

Step 2: Select the installation type(as shown below).

If the system is installed in Advantech UNO or other devices, there are three type for the user to choose:

Text mode installation: Includes elementary and necessary components.

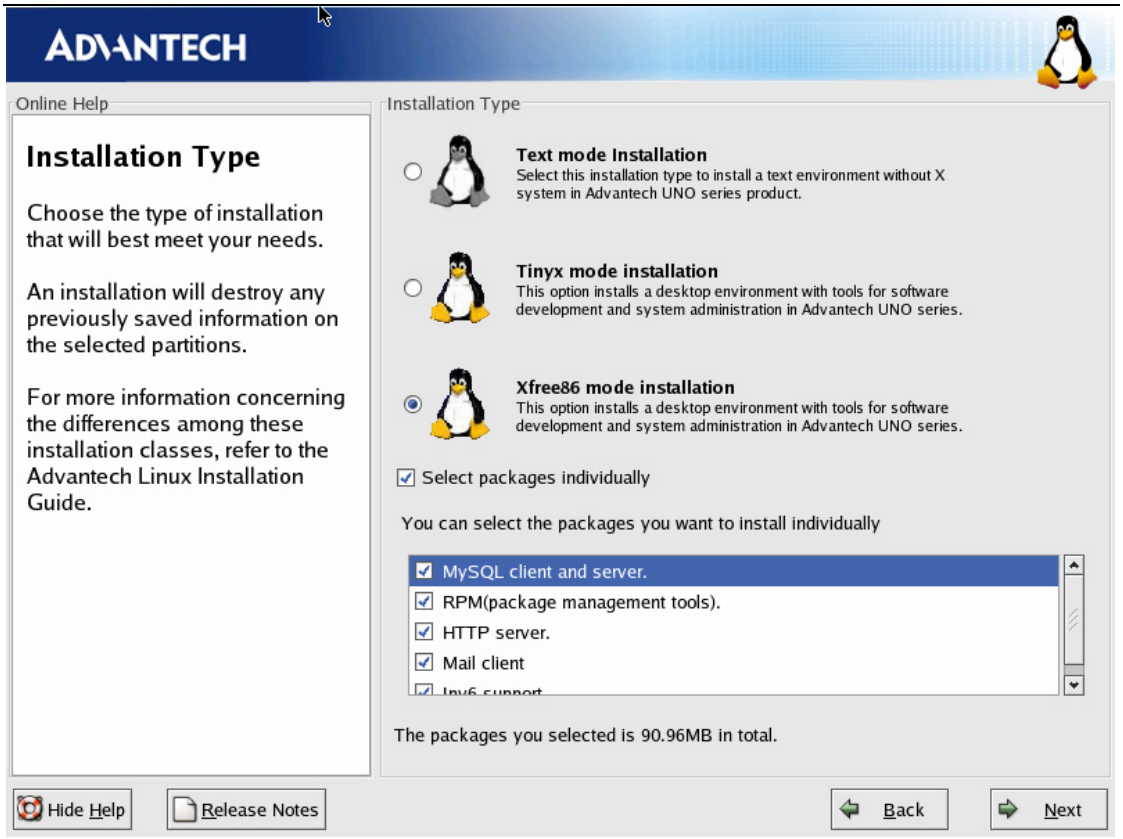
The minimum disk space required: 64M. After the installation, the disk space will be less than 40M.

Tinyx installation mode: Includes X windows using X server tinyx.

The minimum disk space required: 64M. After the installation, the disk space will be less than 50M.

Xfree86 mode installation: Includes the graph interface and TPC adjusting programme based on Xfree86.

The minimum disk space required: 128M. After the installation, the disk space will be less than 65M.


ADVANTECH
Online Help
Installation Type
Choose the type of installation that will best meet your needs.
An installation will destroy any previously saved information on the selected partitions.
For more information concerning the differences among these installation classes, refer to the Advantech Linux Installation Guide.
Installation Type
Text mode Installation
Select this installation type to install a text environment without X system in Advantech UNO series product.
Tinyx mode installation
This option installs a desktop environment with tools for software development and system administration in Advantech UNO series.
Xfree86 mode installation
This option installs a desktop environment with tools for software development and system administration in Advantech UNO series.
Select packages individually
You can select the packages you want to install individually
MySQL client and server.
RPM(package management tools).
HTTP server.
Mail client
The packages you selected is 90.96MB in total.
Hide Help
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Picture 1.4 Interface for selecting the installation type

If the system is installed in Advantech TPC, there are "Text mode" and "Xfree86 mode" types for the user to choose. If Xfree86 mode is selected, touch screen driver and calibrate tools will also be installed.

When installation type is chosen, you can also select the "Select packages individually" check button and select the packages according your need. It mainly contains packages such as follow:

1. MySQL package: mysql database, includes client and server.
2. RPM package: rpm package manage tool.
3. HTTP server package: include Apache http server.
4. Mail client package: include mutt to receive and send mail.
5. IPv6 package: include IPv6 support for iptables.

And some packages are installed as default(such as the RPM and http server packages).

After the installation type and packages are selected, press <next> to continue the installation.

Step 3: Disk partition(as shown below).

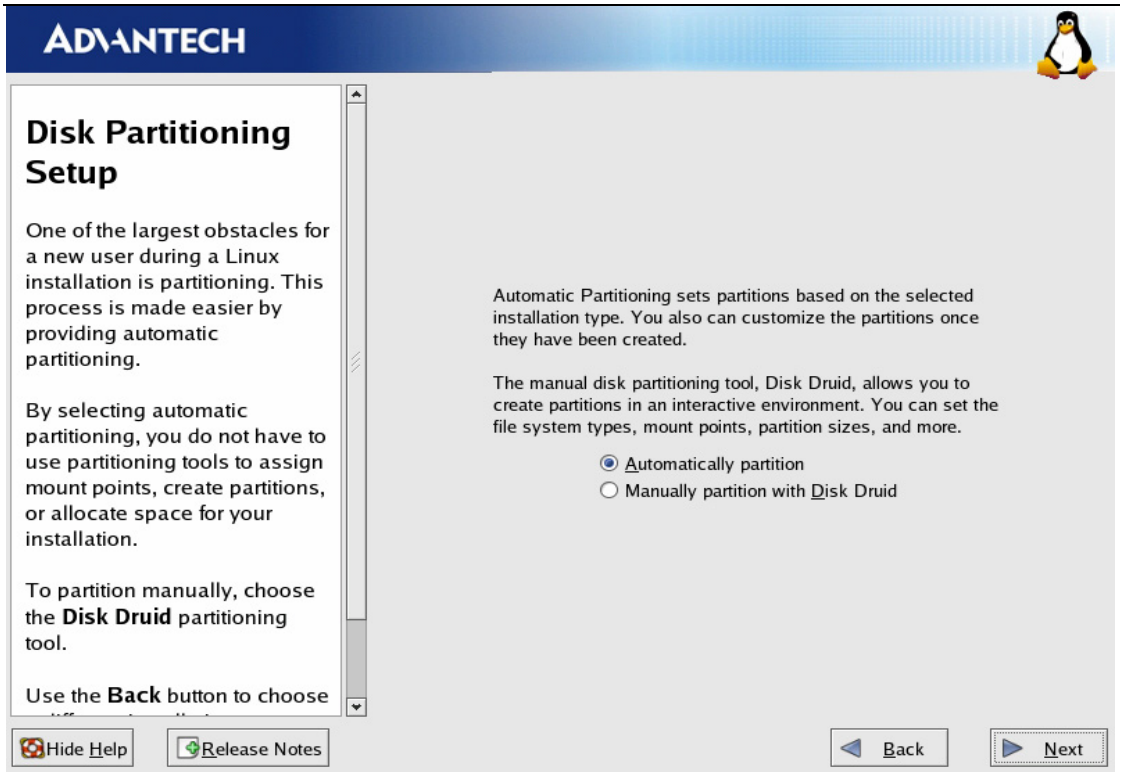
There are two types of disk partition:

Auto Partition: automatically partitioning

Convenient, but the default operation is to clear delete all the previously divided Linux partitions of the disk and thus data is lost.

Disk Druid: manually partitioning

If Disk Druid is selected, the following picture will be shown:


ADVANTECH
Disk Partitioning Setup
One of the largest obstacles for a new user during a Linux installation is partitioning. This process is made easier by providing automatic partitioning.
By selecting automatic partitioning, you do not have to use partitioning tools to assign mount points, create partitions, or allocate space for your installation.
To partition manually, choose the Disk Druid partitioning tool.
Use the Back button to choose
Automatic Partitioning sets partitions based on the selected installation type. You also can customize the partitions once they have been created.
The manual disk partitioning tool, Disk Druid, allows you to create partitions in an interactive environment. You can set the file system types, mount points, partition sizes, and more.
Automatically partition
Manually partition with Disk Druid
Hide Help
Release Notes
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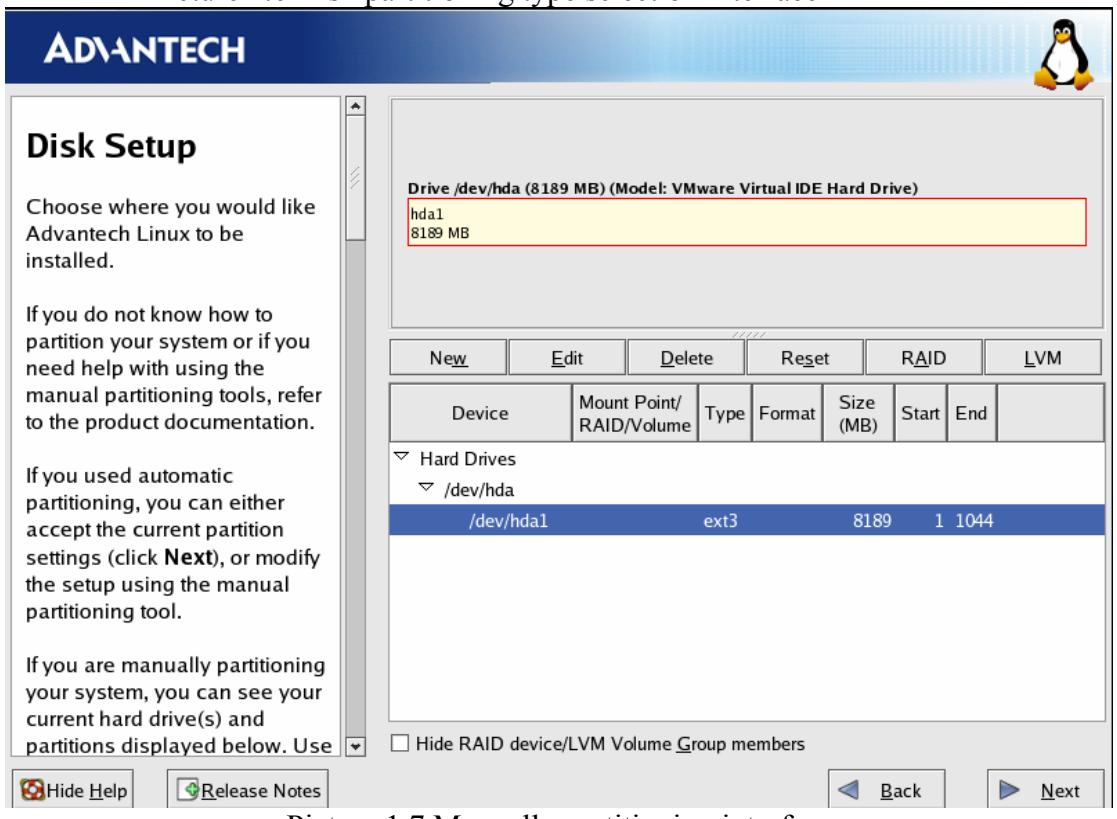
Next

Picture 1.6 Disk partitioning type selection interface



Picture 1.7 Manually partitioning interface

Manual partitioning is convenient that the user can edit, build and delete partitions as well as specify the size of partitions, the format of file system and the mount point.

Build a new partition: To install a system on a new partition, press the “New” button on the main window to build a new partition. The installation procedure will pop up a similar dialog box for the user to specify partition parameters. Advantech

Linux uses ext2 file system format by default.

Note: For more excellent performance, build a swap partition if the disk space is sufficient. The space of this partition should be the same with memory or better twice the memory space. The user will be alarmed if the swap partition is not created. If auto partition is selected, the default function will not build a swap partition.

Delete a partition: Press “Delete” button on the main window to delete partitions. If a partition is deleted mistakenly, press “Reset” button to recover.

Edit a partition: Edit the current partition parameters.

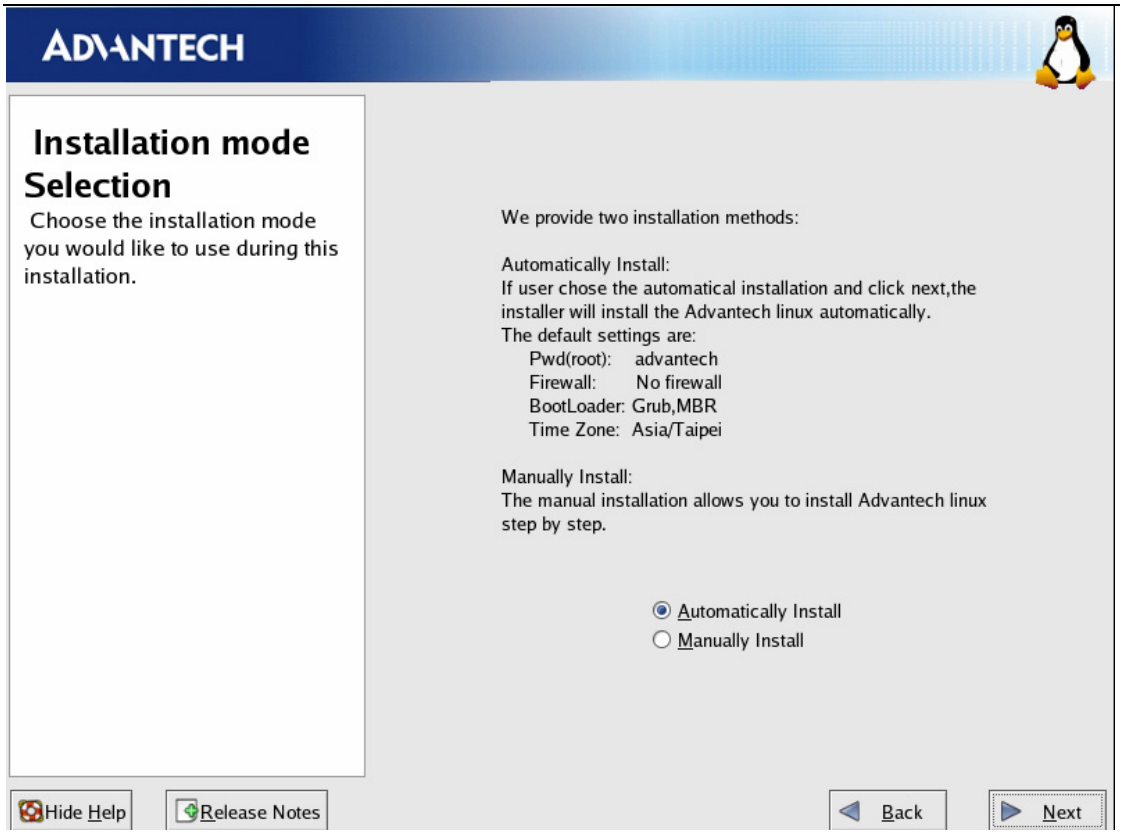
Select the partition to install the system and press <next> to continue the installation. The Partitioning Warnings window will pop up as shown below.

Partitioning Warnings
The following warnings exist with your requested partition scheme.
You have not specified a swap partition. Although not strictly required in all cases, it will significantly improve performance for most installations.
Would you like to continue with your requested partitioning scheme?
No
Yes

Picture 1.8 Partition warning

This warning is a routine when you have not specified a swap partition. If the user makes sure the partitioning is right, press “Yes” button to continue the installation.

Step 4: Select the installation mode as shown below.


ADVANTECH
Installation mode Selection
Choose the installation mode you would like to use during this installation.
We provide two installation methods:
Automatically Install:
If user chose the automatical installation and click next,the installer will install the Advantech linux automatically.
The default settings are:
Pwd(root): advantech
Firewall: No firewall
BootLoader: Grub,MBR
Time Zone: Asia/Taipei
Manually Install:
The manual installation allows you to install Advantech linux step by step.
Automatically Install
Manually Install
Hide Help
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Picture 1.9 Installation mode selection interface

Two kinds of installation mode:

Automatic installation: Use the default settings during the installation without user participation. The default settings are:

Root password: advantech.

Firewall: Disable.

Boot Loader: The boot procedure grub will be installed in the Main Boot Record (MBR).

Time zone: Asia/Taipei.

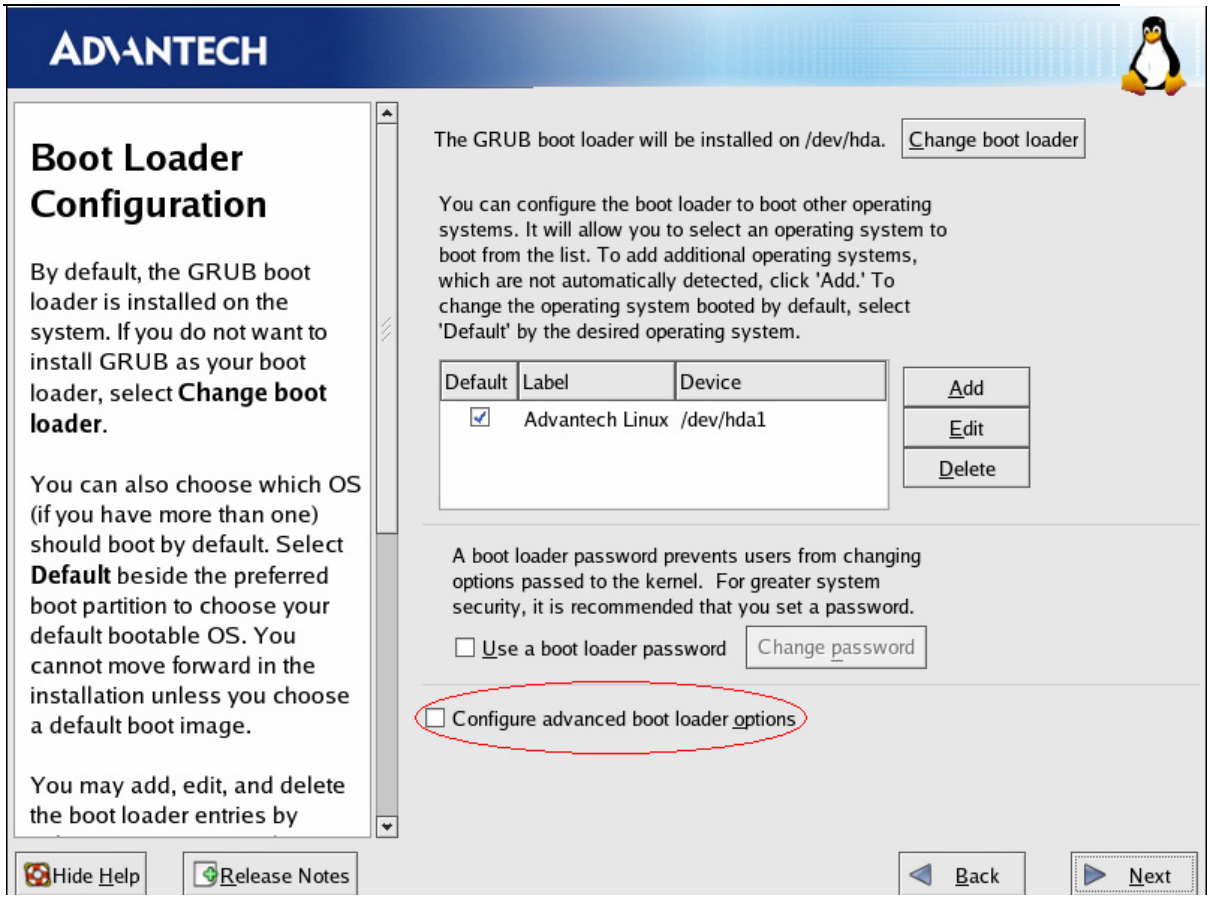
Network configuration: Obtain IP address by DHCP.

Press <next> to begin the installation.

Manually installation: The user can specify his own settings during the installation.

The following is the process of manual installation:

(1) Install the GRUB boot loader.


ADVANTECH
Boot Loader Configuration
By default, the GRUB boot loader is installed on the system. If you do not want to install GRUB as your boot loader, select Change boot loader.
You can also choose which OS (if you have more than one) should boot by default. Select Default beside the preferred boot partition to choose your default bootable OS. You cannot move forward in the installation unless you choose a default boot image.
You may add, edit, and delete the boot loader entries by
The GRUB boot loader will be installed on /dev/hda.
Change boot loader
You can configure the boot loader to boot other operating systems. It will allow you to select an operating system to boot from the list. To add additional operating systems, which are not automatically detected, click 'Add.' To change the operating system booted by default, select 'Default' by the desired operating system.
Default
Label
Device
Advantech Linux
/dev/hda1
Add
Edit
Delete
A boot loader password prevents users from changing options passed to the kernel. For greater system security, it is recommended that you set a password.
Use a boot loader password
Change password
Configure advanced boot loader options
Hide Help
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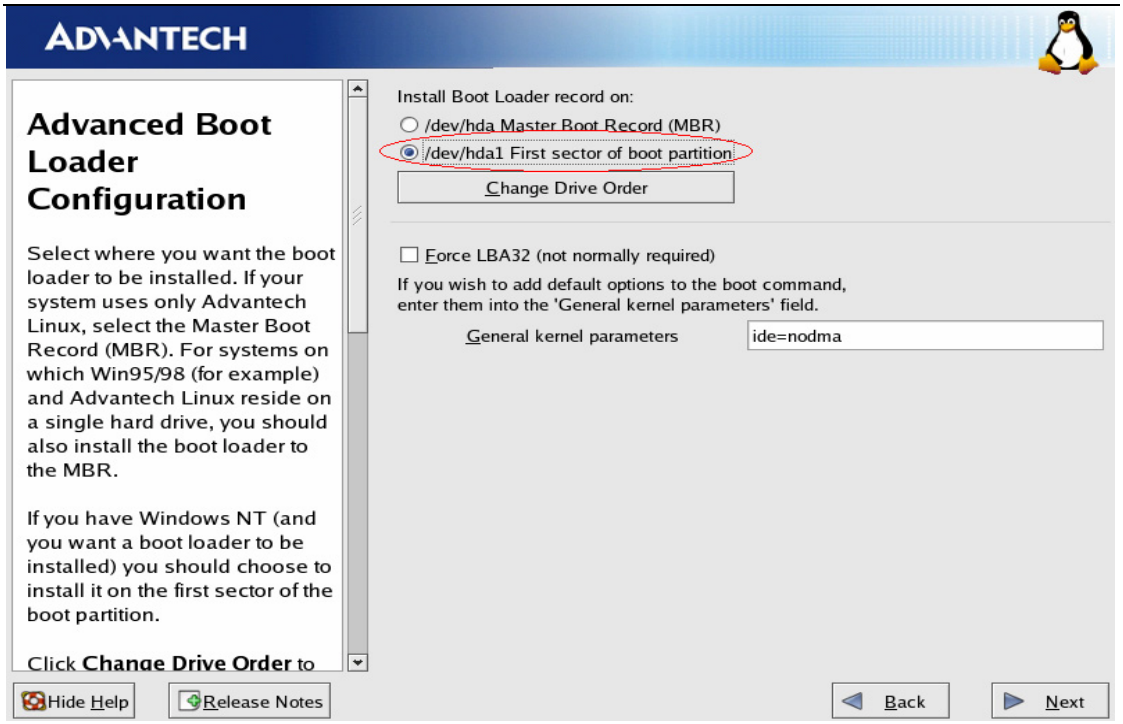
Picture 1.10 Boot loader installation interface

Note: If “Configure advanced boot loader options” on the interface is not selected, then the boot loader will be installed in MBR by default. If an operating system is previously installed on the same disk, then the new boot loader will cover the previous data in MBR and the new MBR does not include the previous operation systems thus they cannot be booted normally. Therefore, the user should install Advantech Linux 2.2 before initiating the system and then add the booting for the previous operating system into the configuration files of the boot loader.

Accordingly, if an operating system is previously installed on the disk, we recommend the user to tick the check box and install the boot loader in the boot sector of the system partition as marked in the following picture.


ADVANTECH
Advanced Boot Loader Configuration
Select where you want the boot loader to be installed. If your system uses only Advantech Linux, select the Master Boot Record (MBR). For systems on which Win95/98 (for example) and Advantech Linux reside on a single hard drive, you should also install the boot loader to the MBR.
If you have Windows NT (and you want a boot loader to be installed) you should choose to install it on the first sector of the boot partition.
Click Change Drive Order to
Install Boot Loader record on:
/dev/hda Master Boot Record (MBR)
/dev/hda1 First sector of boot partition
Change Drive Order
Force LBA32 (not normally required)
If you wish to add default options to the boot command, enter them into the 'General kernel parameters' field.
General kernel parameters
ide=nodma
Hide Help
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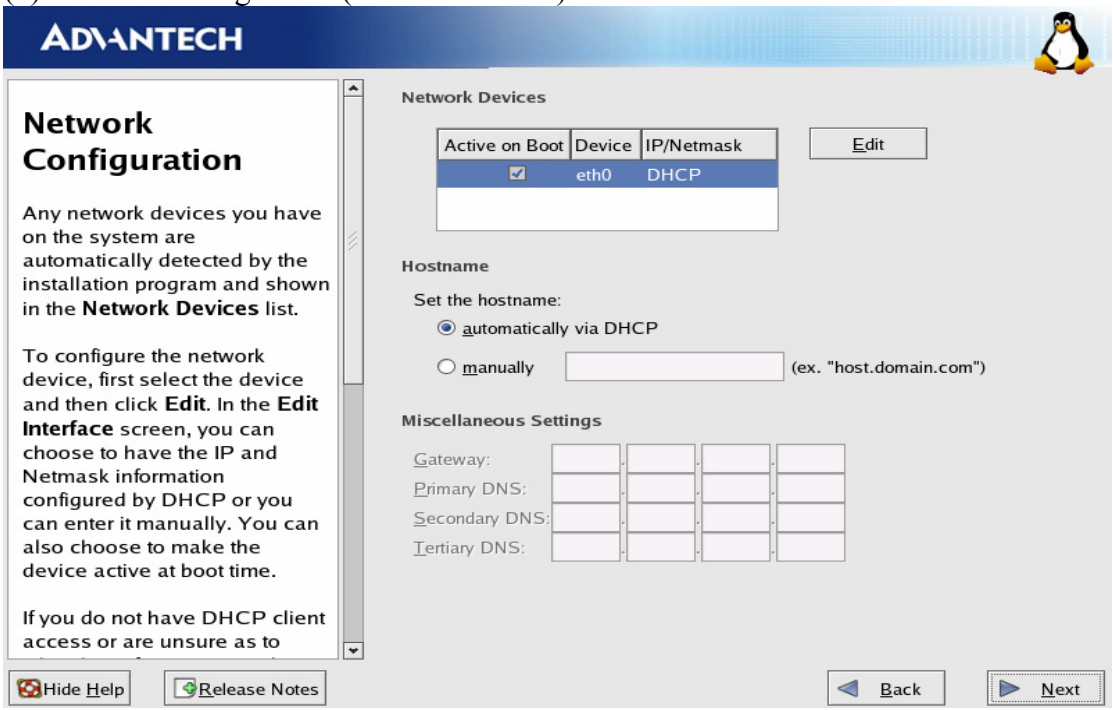
Picture 1.11 Install the GRUB boot loader

Boot the previously installed system after Advantech Linux 2.2 is installed. Add the booting for Advantech Linux 2.2 in the previous system. The booting for the system differs according to different boot loaders. Advantech Linux 2.2 uses the GRUB boot loader. For more details, please refer to

http://www.gnu.org/software/grub/manual/grub.html.

After affirmation, click <Next> to continue the installation and enter the network configuration.

(2) Network configuration(as shown below).


ADVANTECH
Network Configuration
Any network devices you have on the system are automatically detected by the installation program and shown in the Network Devices list.
To configure the network device, first select the device and then click Edit. In the Edit Interface screen, you can choose to have the IP and Netmask information configured by DHCP or you can enter it manually. You can also choose to make the device active at boot time.
If you do not have DHCP client access or are unsure as to
Network Devices
Active on Boot
Device
IP/Netmask
Edit
eth0
DHCP
Hostname
Set the hostname:
automatically via DHCP
manually
(ex. "host.domain.com")
Miscellaneous Settings
Gateway:
Primary DNS:
Secondary DNS:
Tertiary DNS:
Hide Help
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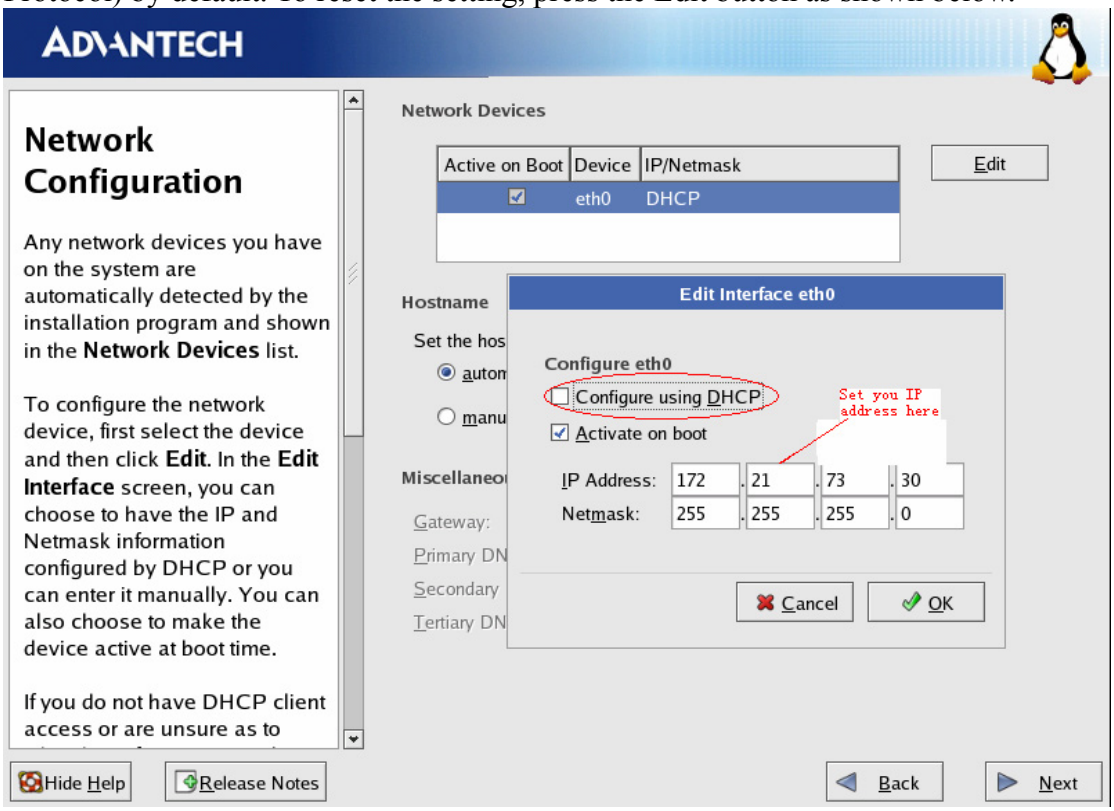
Picture 1.12 Network configuration

Network Device Configuration: Configures the method to obtain the IP address. The

device acquires the IP address using the DHCP (Dynamic Host Configuration Protocol) by default. To reset the setting, press the Edit button as shown below.


ADVANTECH
Network Configuration
Any network devices you have on the system are automatically detected by the installation program and shown in the Network Devices list.
To configure the network device, first select the device and then click Edit. In the Edit Interface screen, you can choose to have the IP and Netmask information configured by DHCP or you can enter it manually. You can also choose to make the device active at boot time.
If you do not have DHCP client access or are unsure as to
Network Devices
Active on Boot
Device
IP/Netmask
eth0
DHCP
Edit
Hostname
Edit Interface eth0
Configure eth0
Configure using DHCP
Activate on boot
Set you IP address here
IP Address: 172 . 21 . 73 . 30
Netmask: 255 . 255 . 255 . 0
Gateway:
Primary DN
Secondary
Tertiary DN
Cancel
OK
Hide Help
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Picture 1.13 IP address configuration

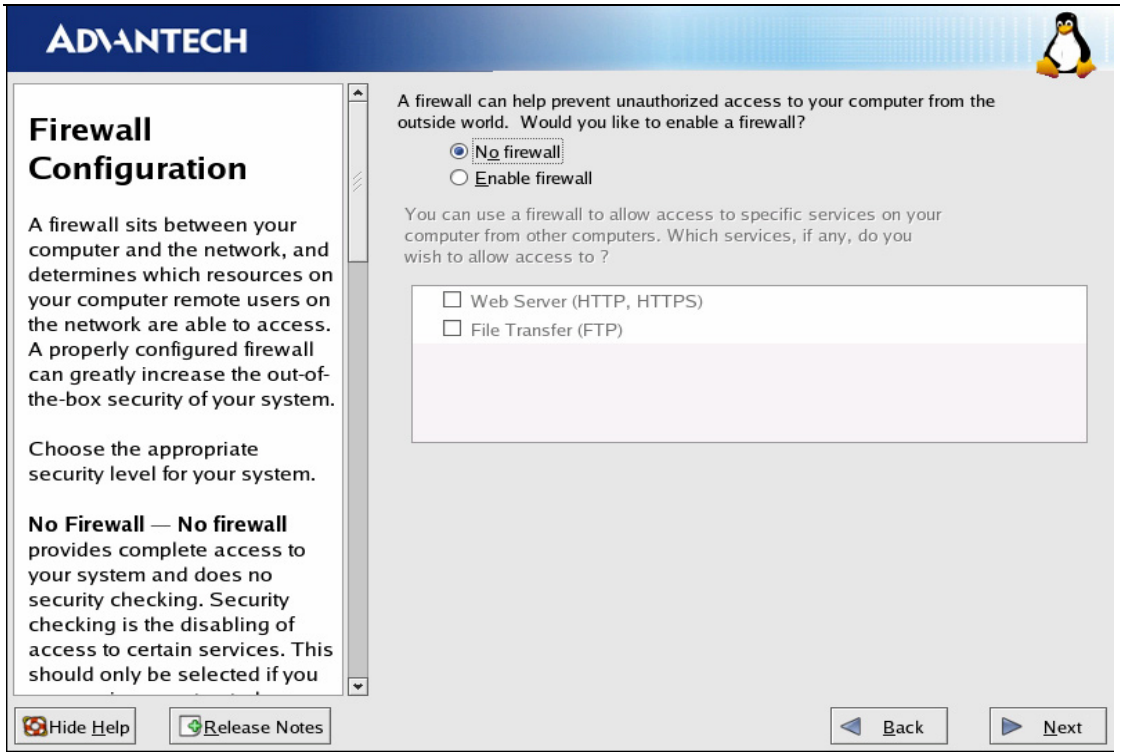
Do not tick the check box for “Configure using DHCP” marked by the red circle. In this way, the IP Address edit box and the Netmask edit box will be enabled for the user to fill in the static IP address as shown in the picture.

Hostname configuration: Acquired hostname using the DHCP by default. To configure the host name manually, tick the radio button for “manually”

Miscellaneous configurations: To acquire IP address by the DHCP, the user needs not fill in these configurations since they will function dynamically. To use the static IP address, the user needs to configure the gateway and DNS address.

After the configuration , press <Next> to continue the installation and enter the firewall installation as shown below.

The firewall is disenabled by default, the user can tick “Enable firewall” to enable the firewall while the system is installed. The interface is shown as below:


ADVANTECH
Firewall Configuration
A firewall sits between your computer and the network, and determines which resources on your computer remote users on the network are able to access. A properly configured firewall can greatly increase the out-of-the-box security of your system.
Choose the appropriate security level for your system.
No Firewall — No firewall provides complete access to your system and does no security checking. Security checking is the disabling of access to certain services. This should only be selected if you
A firewall can help prevent unauthorized access to your computer from the outside world. Would you like to enable a firewall?
No firewall
Enable firewall
You can use a firewall to allow access to specific services on your computer from other computers. Which services, if any, do you wish to allow access to ?
Web Server (HTTP, HTTPS)
File Transfer (FTP)
Hide Help
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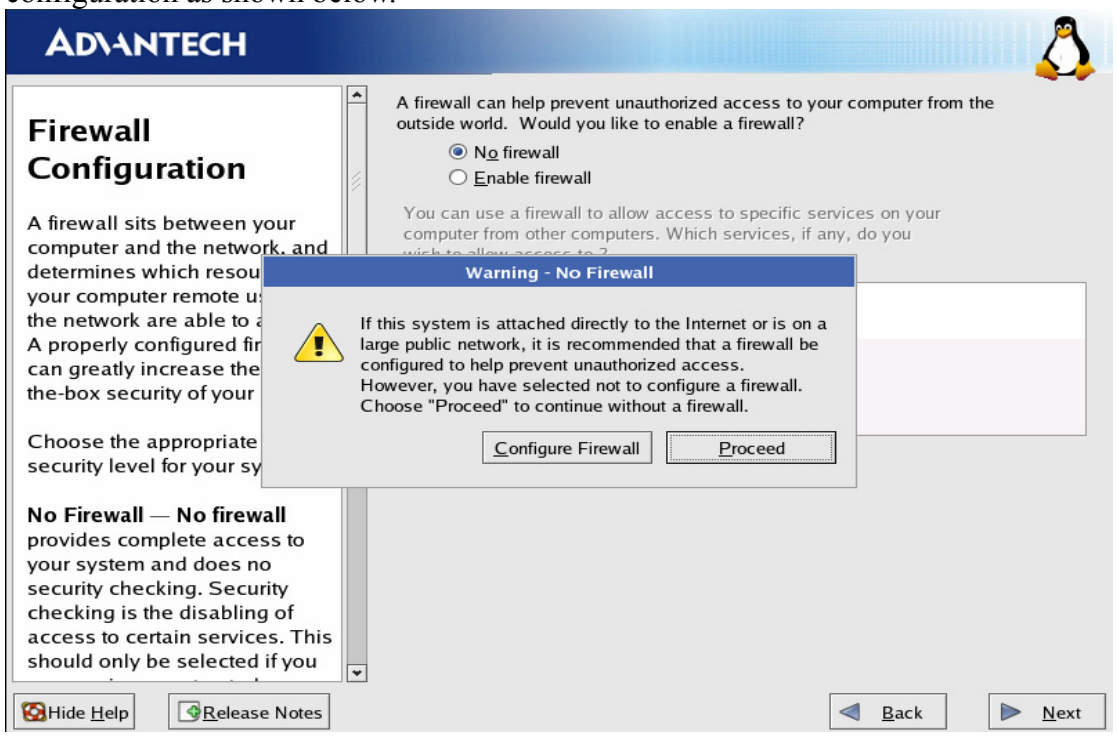
Picture 1.14 Firewall configuration

Note: The user can also use the default configuration to reconfigure the firewall using the lokkit tool after the system installation. Please refer to 2.3.5 for more details.

Press <Next> button and a warning window will pop up for the user to affirm the configuration as shown below.


ADVANTECH
Firewall Configuration
A firewall can help prevent unauthorized access to your computer from the outside world. Would you like to enable a firewall?
No firewall
Enable firewall
Warning - No Firewall
If this system is attached directly to the Internet or is on a large public network, it is recommended that a firewall be configured to help prevent unauthorized access. However, you have selected not to configure a firewall. Choose "Proceed" to continue without a firewall.
Configure Firewall
Proceed
Hide Help
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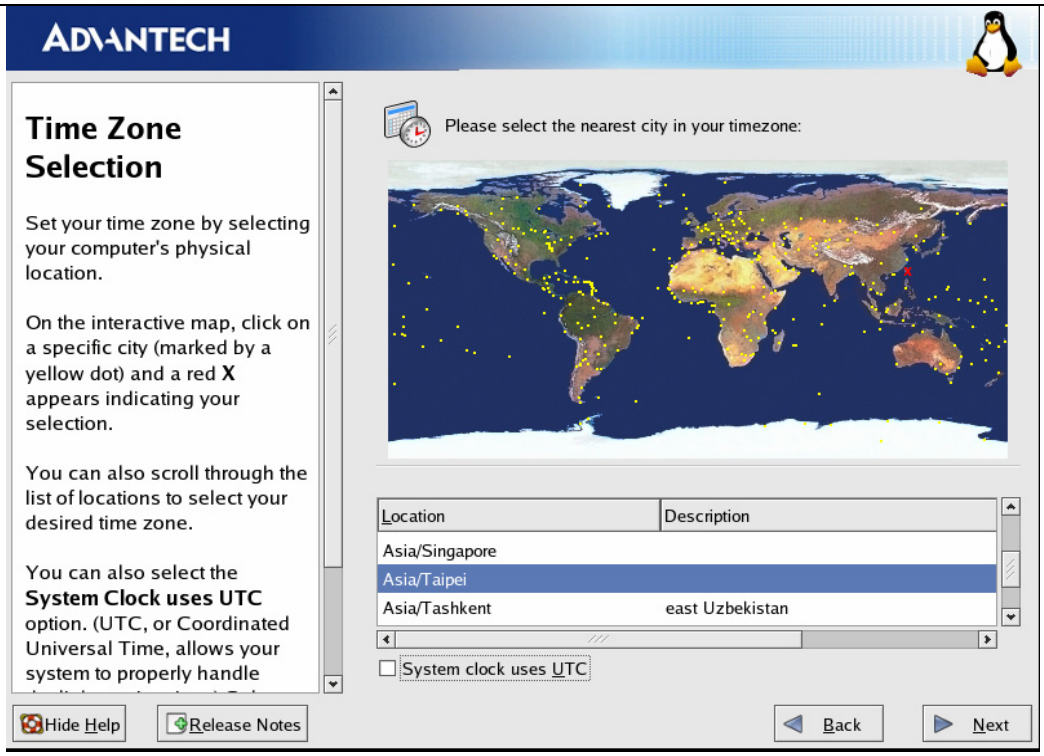
Picture 1.15 Firewall configuration affirmation

Press “Configure Firewall” to reconfigure the firewall. Press “Proceed” to continue the installation and enter the time zone configuration as shown below.


ADVANTECH
Time Zone Selection
Set your time zone by selecting your computer's physical location.
On the interactive map, click on a specific city (marked by a yellow dot) and a red X appears indicating your selection.
You can also scroll through the list of locations to select your desired time zone.
You can also select the System Clock uses UTC option. (UTC, or Coordinated Universal Time, allows your system to properly handle
Please select the nearest city in your timezone:
Location
Description
Asia/Singapore
Asia/Taipei
Asia/Tashkent
east Uzbekistan
System clock uses UTC
Hide Help
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Picture 1.16 Time Zone configuration

The user can click the yellow marks as cities (when a yellow mark is clicked, the information about the selected address will be shown in the tooltip on the screen.) The red X shows the user's choice. The user can also select the time zone by using the list. Select "System clock uses UTC" to configure the system clock to use GMT (Greenwich Mean Time).

Click <Next> and enter the password of root user as required by the installation procedure.

ADVANTECH
Set Root Password
Use the root account only for administration. Once the installation has been completed, create a non-root account for your general use and su – to gain root access when you need to fix something quickly. These basic rules minimize the chances of a typo or incorrect command doing damage to your system.
The root account is used for administering the system.
Enter a password for the root user.
Root Password:
Confirm:
Hide Help
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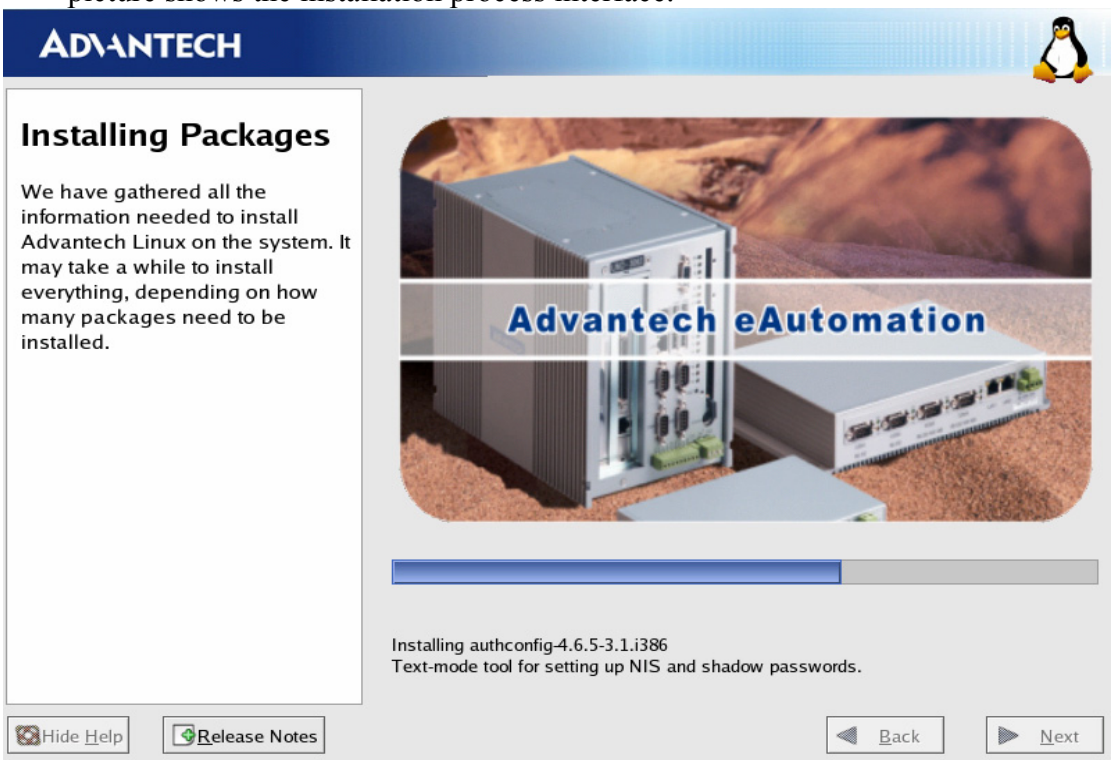
Picture 1.17 Set Root Password interface

Enter the password and click <Next> to begin system installation. The following picture shows the installation process interface.


ADVANTECH
Installing Packages
We have gathered all the information needed to install Advantech Linux on the system. It may take a while to install everything, depending on how many packages need to be installed.
Advantech eAutomation
Installing authconfig-4.6.5-3.1.i386
Text-mode tool for setting up NIS and shadow passwords.
Hide Help
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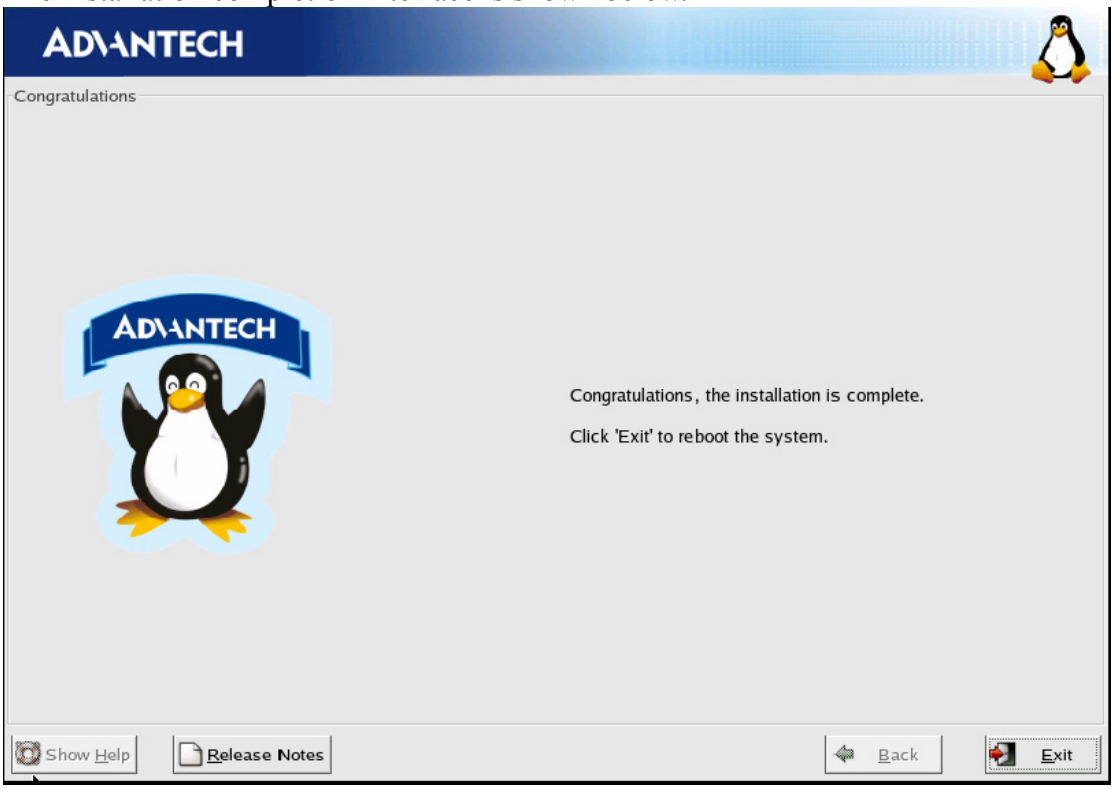
Picture 1.18 Installation process interface

The time required by the installation process is relative to hardware performance. It can be several minutes.

The installation completion interface is shown below.



Picture 1.19 Installation Completion Interface

After the installation, Press <Exit> ,then the CD driver will eject, please remove the

disc from the CD driver and press any key to restart the system.
The system installation is complete, please enjoy it!

1.4 Character installation mode

The character installation mode is similar to the graphical installation mode. Please refer to the graph installation.

2. Configure the system

After the installation, the user can configure the system by demands for better performance.

2.1 System network service configuration

The following table shows the default status of network service after the system service is initiated.

Service	Status
Tftp	Disabled
ftp	Disabled
Web server	Disabled
telnet	Disabled

2.2 Start the system service

2.2.1 tftp (light ftp) service

To start the tftp service, edit the file accessed by /etc/xinetd.d. Change “disable=yes” to “disable=no” and save the change. Perform the following command to initiate the tftp sever.

```
#/etc/rc.d/init.d/xinetd restart
```

2.2.2 ftp service

Perform the following command at the terminal (shell command line) to initiate the ftp server:

```
#/etc/rc.d/init.d/vsftpd start
```

If “OK” is echoed at the terminal, then the ftp service has been initiated.

2.2.3 web service

Perform the following command at the terminal to initiate the web server.

```
#/etc/rc.d/init.d/httpd start
```

Afterward, access this host through the web browser of another one. If the testing page is shown normally, then the web service of this host has been normally initiated.

2.2.4 telnet service

To initiate the telnet service, edit the file accessed by /etc/xinetd.d/telnet. Change “disable=yes” to “disable=no” and save the change. Perform the following command to initiate the telnet service.

```
# /etc/rc.d/init.d/xinet restart
```

Afterward, access this host through the telnet command of another one. If the testing page is shown normally, then the telnet service of this host has been normally initiated.

2.3 Network configuration

2.3.1 Use the static IP address

For example, if configure eth0 to use the IP address 172.21.73.30, then edit the file

accessed by /etc/sysconfig/network-scripts/ifcfg-eth0 as shown below:

DEVICE=eth0
ONBOOT=yes
BOOTPROTO=static
IPADDR=172.21.73.30
NETMASK=255.255.255.0
GATEWAY=172.21.73.1

After the file is edited and saved, use ifup eth0 again to enable the network card.
If the static IP is already used, then perform the following command to change the IP address:

#ifconfig eth0 ***.***.***.*** (new IP address)

2.3.2 Acquire the IP address dynamically

To acquire the IP address dynamically, edit the file accessed by /etc/sysconfig/network-scripts/ ifcfg-eth0 as shown below:

DEVICE=eth0
ONBOOT=yes
BOOTPROTO=dhcp

After the file is edited and saved, use ifup eth0 again to enable the network card.

2.3.3 Mail sending/receiving configuration file

To use the mail sending/receiving function, the user should build four configuration files shown as follow about mail sending/receiving under the user catalog (the root account is the catalog /root and the ordinary user is the catalog of username under /home):

(1) .esmtprc. It contains the following items:

identity = username@mailserver
hostname = smtp server:25
username = "username"
password = "password"
mda = "/usr/bin/procmail -d %T"

(2) .fetchmail. It contains the following items:

defaults
mda "/usr/bin/esmtp -f %F %T"
poll pop3server #for example pop.advantech.com.cn
protocol POP3
user "username"
password "passwd"

(3) .muttrc. It contains the following items:

set editor="vi"
set charset="utf-8"
set locale="zh_CN.UTF-8"
charset-hook !utf-8 gbk
set send_charset="us-ascii:iso-8859-1:gbk:utf-8"
set sendmail="/usr/bin/esmtp -v -X ~/.esmtplog"
my_hdr From: username<username@mailserver>
my_hdr Reply-To: username<username@mailserver>

(4) .procmailrc

MAILDIR=/var/spool/mail

```
LOGFILE=$HOME/.procmaillog
LOGABSTRACT=no
VERBOSE=off
FORMAIL=/usr/bin/formail
NL=" "
:0
* ^To.*username@mailserver
junk
:0
* .*
New
```

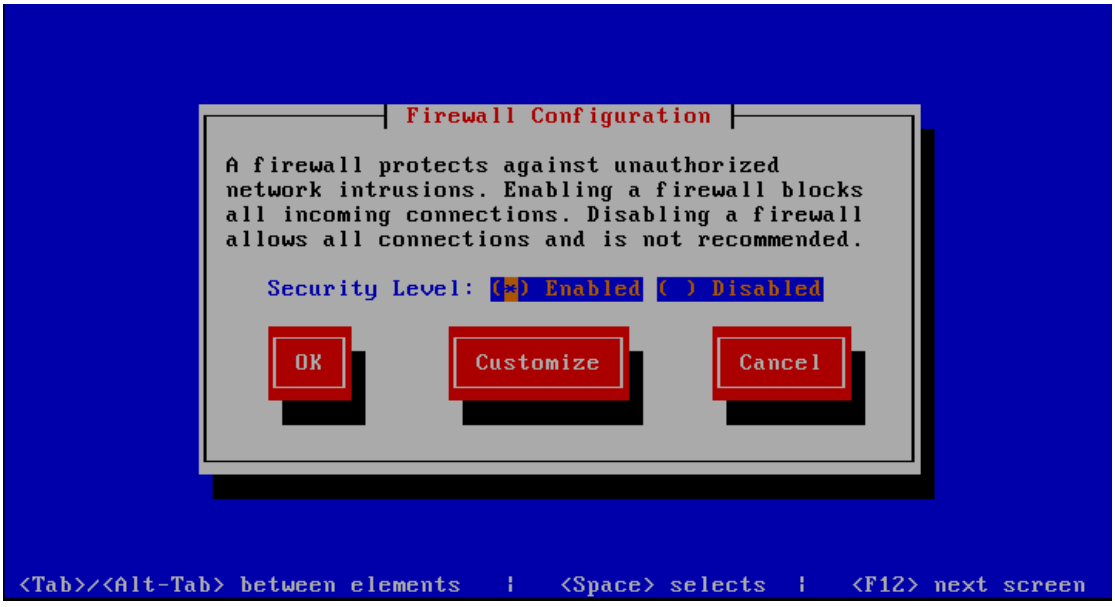
In the four files above, “username” is the account name of the mail, “password” is the account password, and “mailserver” is the mail server such as hotmail.com. The user can configure files according to mail accounts. The information about mail account and address of the four files should be identical.

2.3.4 Mail sending/receiving

Advantech Linux2.2 uses mutt as the mail sending/receiving client. Type the mutt command at the terminal in order to enter sending/receiving mails. The user can also receive mails by using the fetchmail command. Please refer to http://www.mutt.org/ for more information about mutt.

2.3.5 Firewall configuration

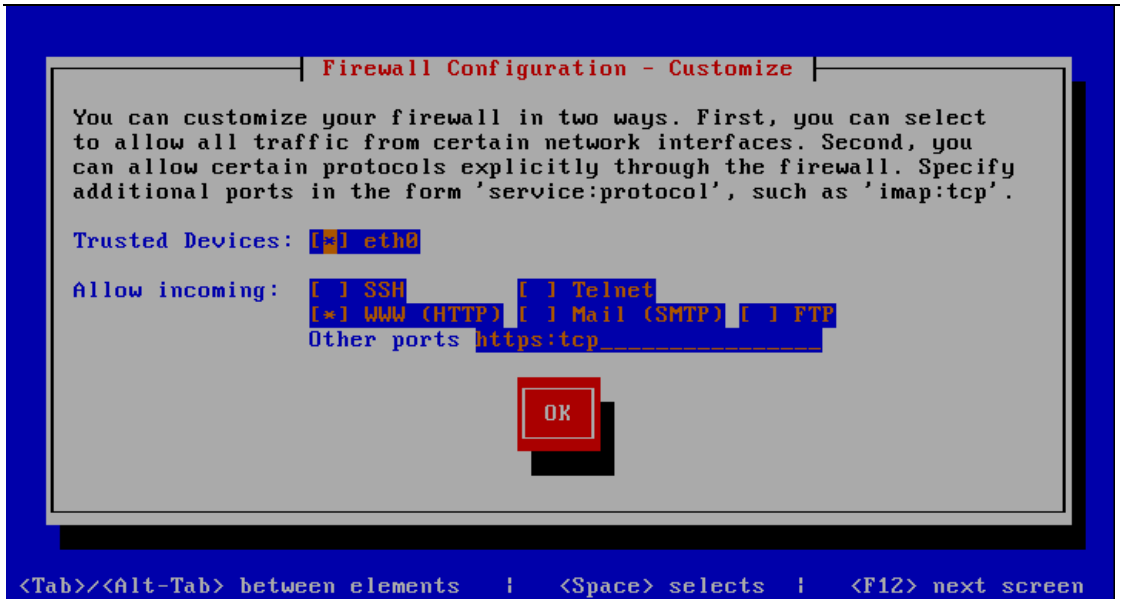
Configure the firewall with the lokkit tool and perform the command lokkit at the terminal as shown below:


Firewall Configuration
A firewall protects against unauthorized network intrusions. Enabling a firewall blocks all incoming connections. Disabling a firewall allows all connections and is not recommended.
Security Level: (*) Enabled ( ) Disabled
OK
Customize
Cancel
<Tab>/<Alt-Tab> between elements | <Space> selects | <F12> next screen

Picture 2.1 Firewall configuration

The user can choose Enabled for “Security Level” in order to enable the firewall or choose Disabled to disenable the firewall. Use the space bar to switch between Enabled/Disabled.

If the firewall is enabled, the user can customize the firewall by more commands. Change the focus to “Customize” by the direction key and press enter for the firewall customizing interface.

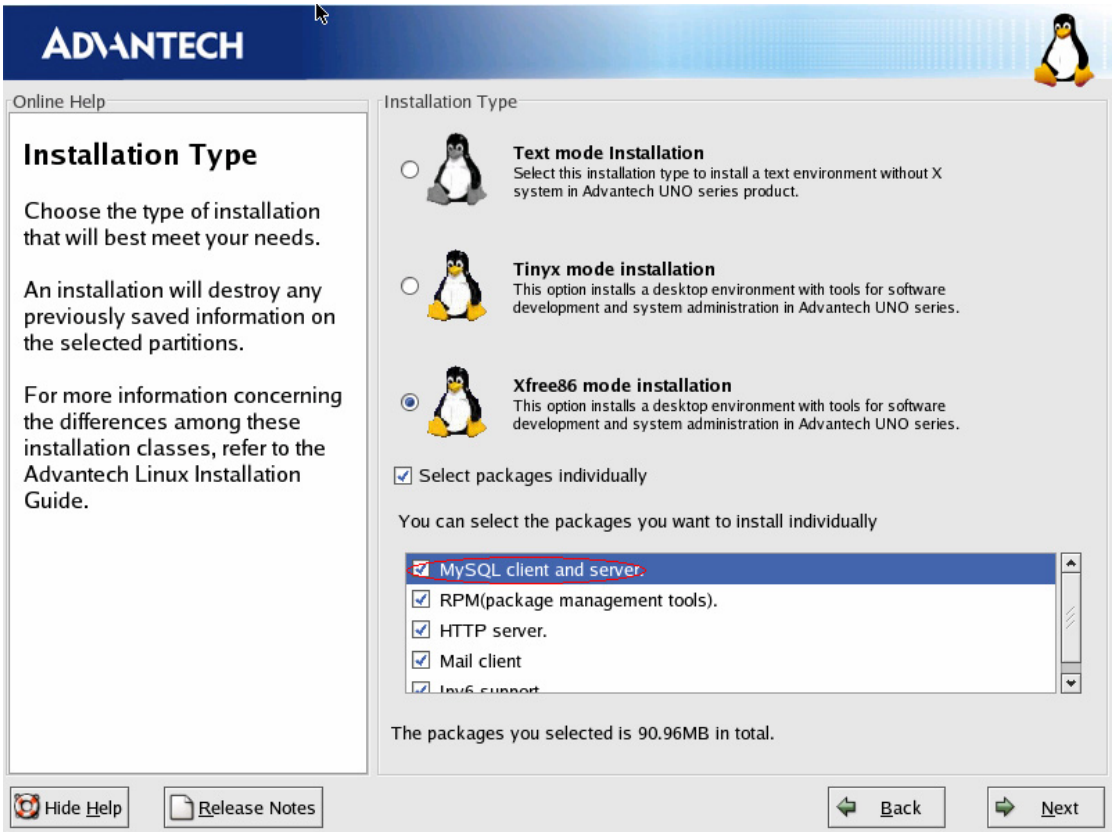

Firewall Configuration - Customize
You can customize your firewall in two ways. First, you can select to allow all traffic from certain network interfaces. Second, you can allow certain protocols explicitly through the firewall. Specify additional ports in the form 'service:protocol', such as 'imap:tcp'.
Trusted Devices: [*] eth0
Allow incoming: [ ] SSH [ ] Telnet
[*] WWW (HTTP) [ ] Mail (SMTP) [ ] FTP
Other ports https:tcp
OK
<Tab>/<Alt-Tab> between elements | <Space> selects | <F12> next screen

Picture 2.2 Customize the firewall

The user can choose whether to depend on the network port of the computer or not. The protocol trusted by the user could be set to access the PC.

2.4 MySQL Database Configuration

If you select to install MySQL database(include server and client):


ADVANTECH
Online Help
Installation Type
Choose the type of installation that will best meet your needs.
An installation will destroy any previously saved information on the selected partitions.
For more information concerning the differences among these installation classes, refer to the Advantech Linux Installation Guide.
Installation Type
Text mode Installation
Select this installation type to install a text environment without X system in Advantech UNO series product.
Tinyx mode installation
This option installs a desktop environment with tools for software development and system administration in Advantech UNO series.
Xfree86 mode installation
This option installs a desktop environment with tools for software development and system administration in Advantech UNO series.
Select packages individually
You can select the packages you want to install individually
MySQL client and server.
RPM(package management tools).
HTTP server.
Mail client
The packages you selected is 90.96MB in total.
Hide Help
Release Notes
Back
Next

Picture 2.3 select to install mysql database

You can use the command as follow to start mysql server:

```
#/etc/init.d/mysql.d start
```

And use the command to start mysql clinet:

```
#mysql  -u username  -p passwd
```

Note: the arguments of mysql command may be different, it depends on the configuration of mysql server. How to config mysql server,please refer to the MySQL Reference Manual:

http://dev.mysql.com/doc/.

3. System safety and optimization

3.1 Responsibility of system safety management

(1) The system safety is greatly relative to the manager. The manager's responsibility includes four aspects:
(2) Prevent unauthorized access: This is the most important issue about the safety. To avoid unauthorized access, the key steps includes password management, record and report about logging in activities, periodical check for user network activities.
(3) Anti-telling: Avoid the authorized and unauthorized users access important information of each other. The measures for anti-telling include encrypting, file system check, su logging in and report.
(3) The system manager can examine the system periodically by ps, df and du commands, deal with the processes and files that overuse the system resource.
(4) Keep the system integrality. Periodically backup the file system, perform the fsck command to check system breakdown, restore the file system, etc.

3.2 Password

Essential measures for system safety. The following are rules for selecting effective and safe passwords.

(1) The password should best be composed by 6 characters with at least one number or special character.
(2) The password must not be the name, telephone number or other personal information.
(3) The password must be used for a period of validity only. It should be changed after a period of time.

After the Linux is installed, the minimum number of password character is 5 by default or compulsively set to greater than 5. For example, if the number of character is 8, edit the file accessed by /etc/login.defs. Find out the line PASS_MIN_LEN 5 and change 8 to 5. Other safety measures can also be set in this file, such as the period of validity for the password.

There is no restricting for the root account. Special attention should be given to the root account usage. Especially do not use the root account to log in the server on another computer.

3.3 Disable some commands for system safety

Some commands can be disenabled in order to ensure the system safety, such as shutdown and halt,etc. The corresponding commands accessed by /etc/security/console.apps can be deleted in order to prevent the

ordinary user from using these commands.
For example, execute the command:
rm -f /etc/security/console.apps.shutdown
so that the shutdown command will not be available to the ordinary user.

3.4 Configure Internet Super-Server

The network service will be implemented as daemon procedure in Linux system in order to listen all the ports of initiated network services. To install Linux into any network environment, first, the user should be acquainted with the services provided by the server. Unnecessary service should be disenabled. In order to reduce the possibility of system damage, the user should check the file accessed by /etc/xinetd.conf, find out the service provided by xinetd, and annotate the service to be disenabled (add the mark '#' before each line).

Note: After the file *xinetd.conf* is changed, a SIGHUP signal (killall -HUP xinetd) should be sent to the xinetd process.

The chattr command will set the file *xinetd.conf* to unchangeable; only the administrator can delete, rename, write or build the link of this file.
To add this property: #chattr +i /etc/xinetd.conf
To clear this property: #chattr -i /etc/xinetd.conf

3.5 Prevent the system from responding to the ping command

This is a good way to protect the system. To prevent the system from responding to the ping command, the following command can be used:

```
#echo 1 > /proc/sys/net/ipv4/icmp_echo_ignore_all
```

To restore the system to respond the ping command, use the following command:

```
#echo 0 > /proc/sys/net/ipv4/icmp_echo_ignore_all
```

3.6 Prohibit the keyboard closing command *Control-Alt-Delete*

Annotate the following line in the file accessed by /etc/inittab:

```
ca::ctrlaltdel:/sbin/shutdown -t3 -r now
```

Then change it to:

```
#ca::ctrlaltdel:/sbin/shutdown -t3 -r now
```

Enter the following command in order to perform the change:

```
# /sbin/init q
```

3.7 Make the root file system read-only

Advantech linux 2.2 can mount root file system with read-only or read-write mode according to parameter in grub configuration file.

When grub is loading during system booting, press the direction key and an interface providing two boot choices for the user to select. In order to enhance system stability, the user had better to select the read-only mode.

The read-write mode is the default startup option. In order to change the default startup option to the read-only mode, follow the command below:

Vi /boot/grub/menu.lst

Then change “default=0” to “default=1”.

4. Graphical interfaces

4.1 Introduction:

Advantech Linux 2.2 can be used in graphical environment. If the user chooses graphical mode installation when installing the system, then the system will startup X-window by default.

The Advantech Linux X-window system mainly contains the following components:

(1) Tinyx

Tiny X Server is based on XFree86, which is developed by Keith Packard, member of the XFree86 core development group. It is the simplified version of the standard X-windows system and some devices checking processes are deleted. As long as vesia2.0 can be used with the vga card, the display card needs not to be configured. Furthermore, it has favorable compatibility that all procedures perform in the standard X can be transplanted to tinyX. Compared with the standard X, tinyX is much smaller and is very suitable for embedded system environment.

(2) XFree86

It is a cost-free standard X server software with high configurability. All graphic cards on the market have certain configuration for XFree86.

The system uses the version XFree86-4.3.0-2.

(3) Fluxbox

Fluxbox window manager: FluxBox is another X window manager based on and looks like Blackbox 0.61.1. It is used to specify the form, color and window.

The system uses the version fluxbox-0.9.15.

Official website: http://fluxbox.sourceforge.net/

For further details, refer to

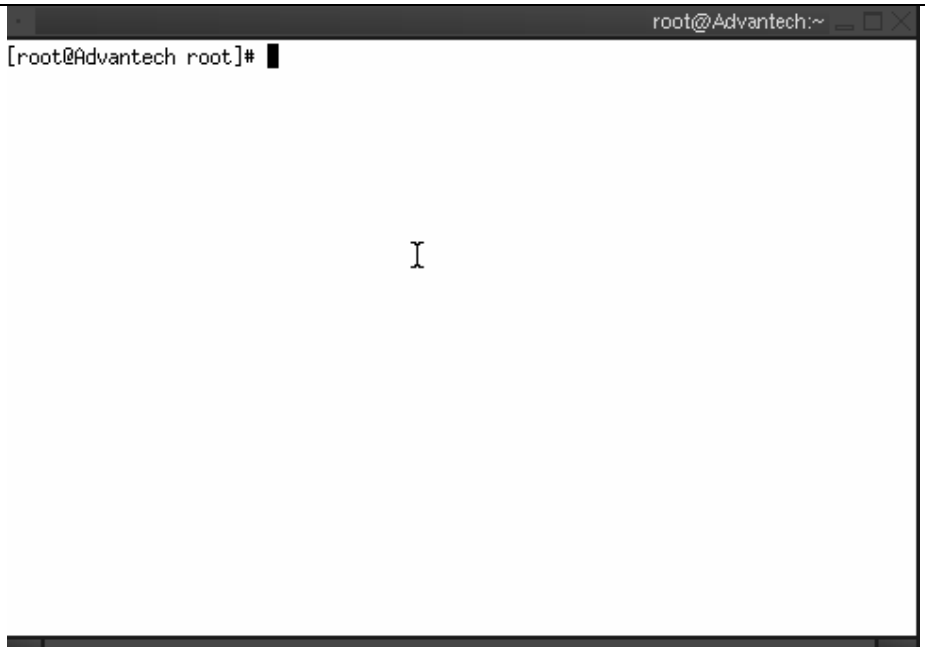
http://fluxbox.sourceforge.net/docbook/zh_cn/fluxbox-docs.html

(4) xdm

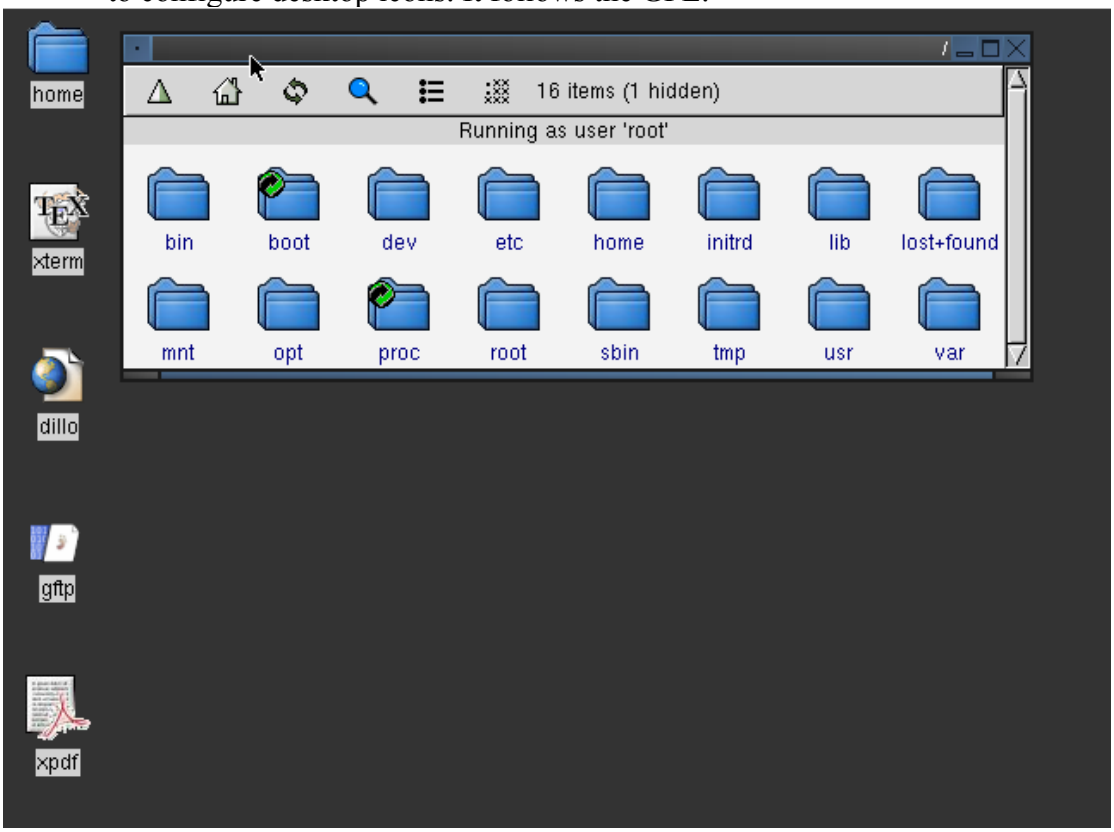
It is a X client program and is mainly used for building a login to check the password and configure the environment after login.

(5) Other X applications

- Xterm: The terminal in X environment. It is applied to several released versions of Linux.



- Rox-filer:
  It provides folder management functions similar to windows and can be used to configure desktop icons. It follows the GPL.

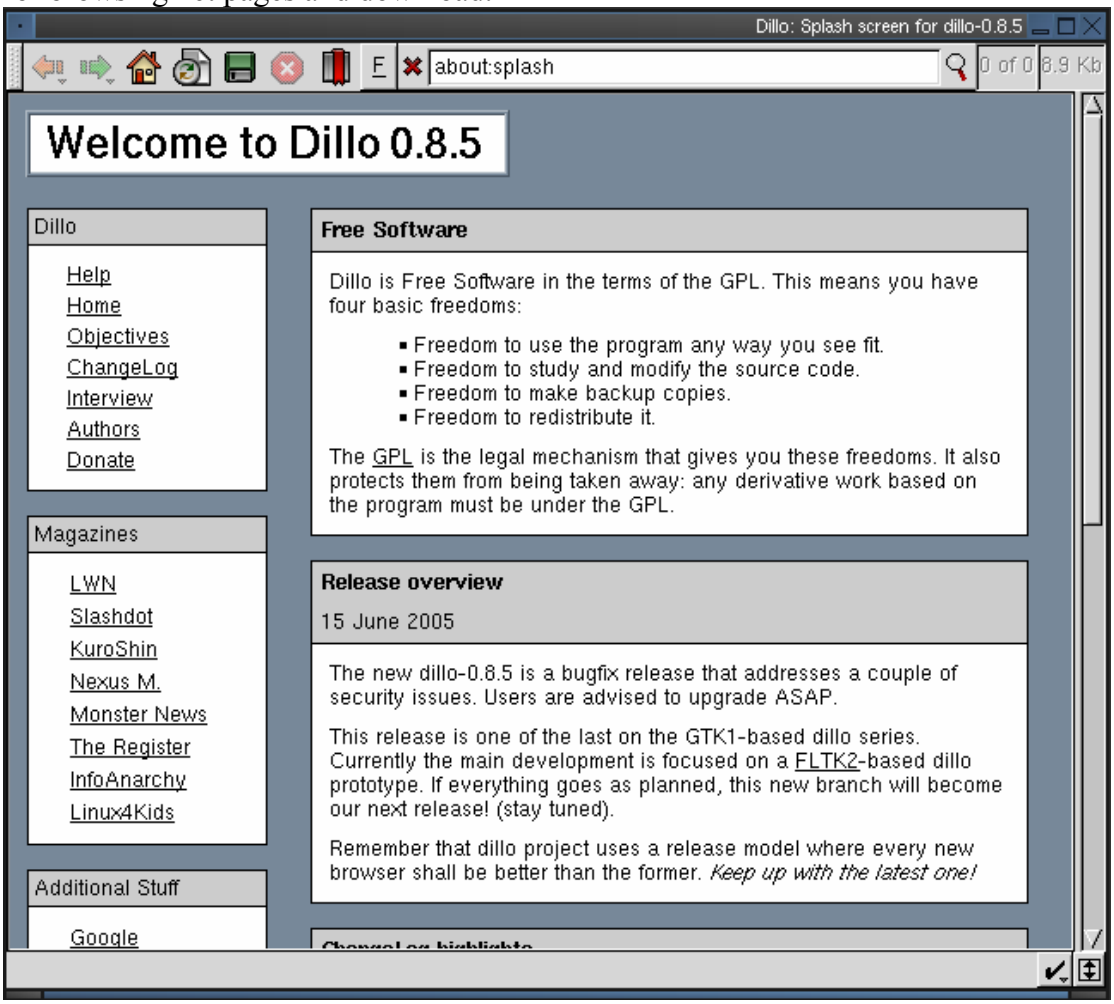


The system uses the version ROx-filer-1.2.2.

Official site: http://rox.sourceforge.net/desktop/static.html

- Dillo: A mini browser that follows the GPL. Completely written with the C language, its speed is fast. It is a graphical browser based on GTK+ and can be used

for browsing net pages and download.

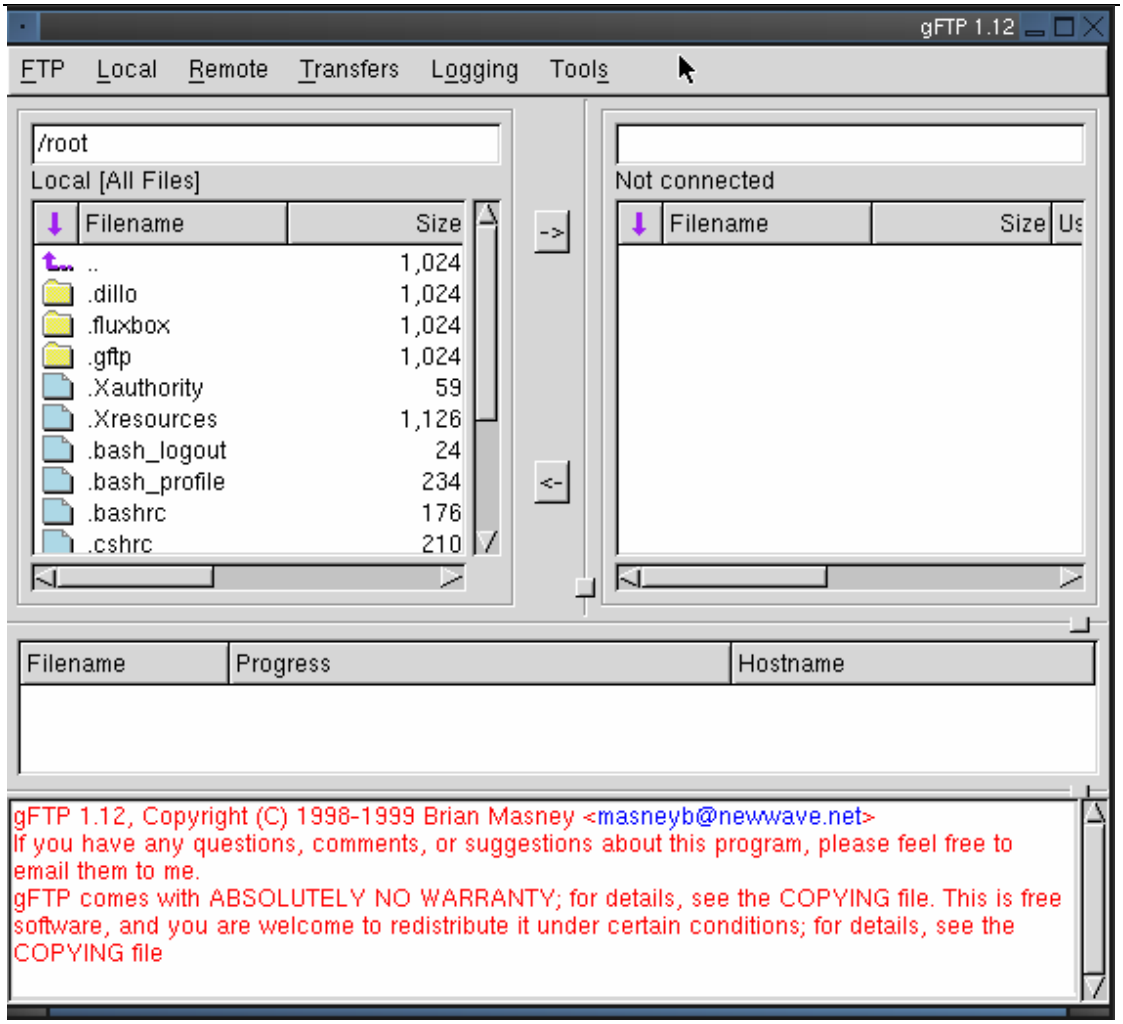

Dillo: Splash screen for dillo-0.8.5
about:splash
0 of 0
8.9 Kb
Welcome to Dillo 0.8.5
Dillo
Help
Home
Objectives
ChangeLog
Interview
Authors
Donate
Magazines
LWN
Slashdot
KuroShin
Nexus M.
Monster News
The Register
InfoAnarchy
Linux4Kids
Additional Stuff
Google
Free Software
Dillo is Free Software in the terms of the GPL. This means you have four basic freedoms:
Freedom to use the program any way you see fit.
Freedom to study and modify the source code.
Freedom to make backup copies.
Freedom to redistribute it.
The GPL is the legal mechanism that gives you these freedoms. It also protects them from being taken away: any derivative work based on the program must be under the GPL.
Release overview
15 June 2005
The new dillo-0.8.5 is a bugfix release that addresses a couple of security issues. Users are advised to upgrade ASAP.
This release is one of the last on the GTK1-based dillo series. Currently the main development is focused on a FLTK2-based dillo prototype. If everything goes as planned, this new branch will become our next release! (stay tuned).
Remember that dillo project uses a release model where every new browser shall be better than the former. Keep up with the latest one!

The system uses the version dllo-0.8.5.

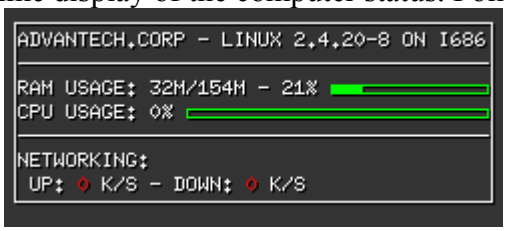
Official website: http://www.dillo.org/

- Gftp: A mini ftp server. Follow the GPL.

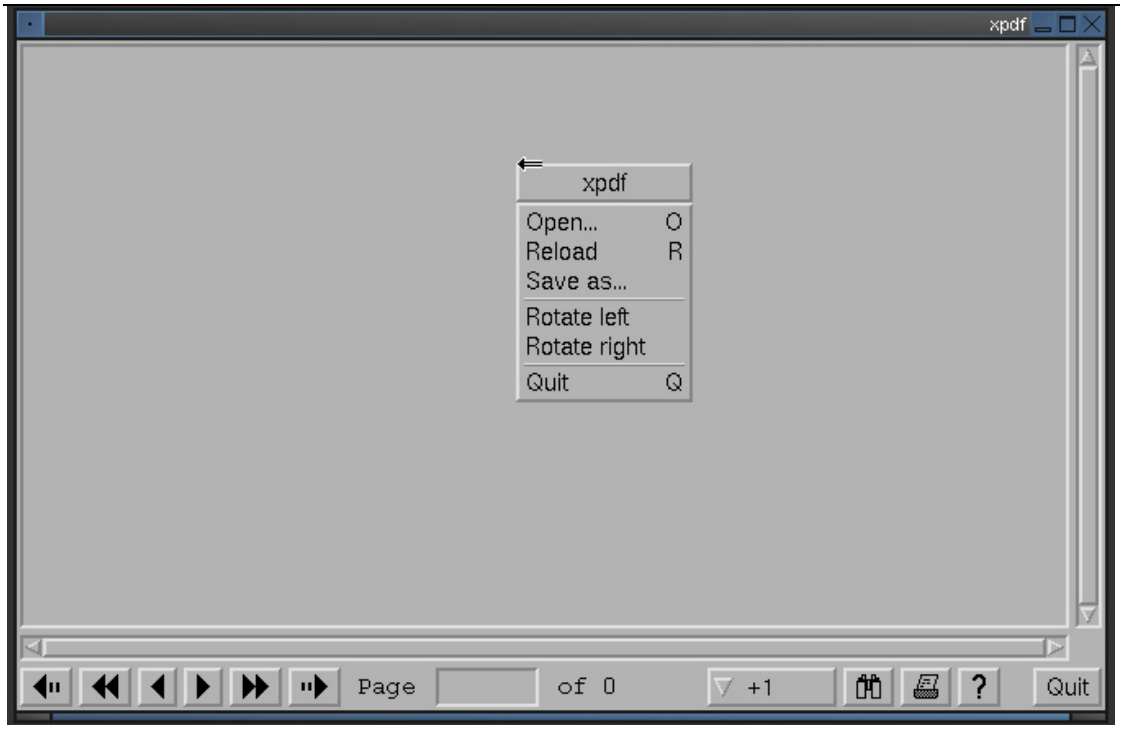
  The system uses the version gftp-1.12.


gFTP 1.12
FTP Local Remote Transfers Logging Tools
/root
Local [All Files]
Filename Size
.. 1,024
.dillo 1,024
.fluxbox 1,024
.gftp 1,024
.Xauthority 59
.Xresources 1,126
.bash_logout 24
.bash_profile 234
.bashrc 176
.cshrc 210
->
<-
Not connected
Filename Size Us
Filename Progress Hostname
gFTP 1.12, Copyright (C) 1998-1999 Brian Masney <masneyb@newwave.net>
If you have any questions, comments, or suggestions about this program, please feel free to email them to me.
gFTP comes with ABSOLUTELY NO WARRANTY; for details, see the COPYING file. This is free software, and you are welcome to redistribute it under certain conditions; for details, see the COPYING file

- Torsmo: Real-time display of the computer status. Follow the BSD License.

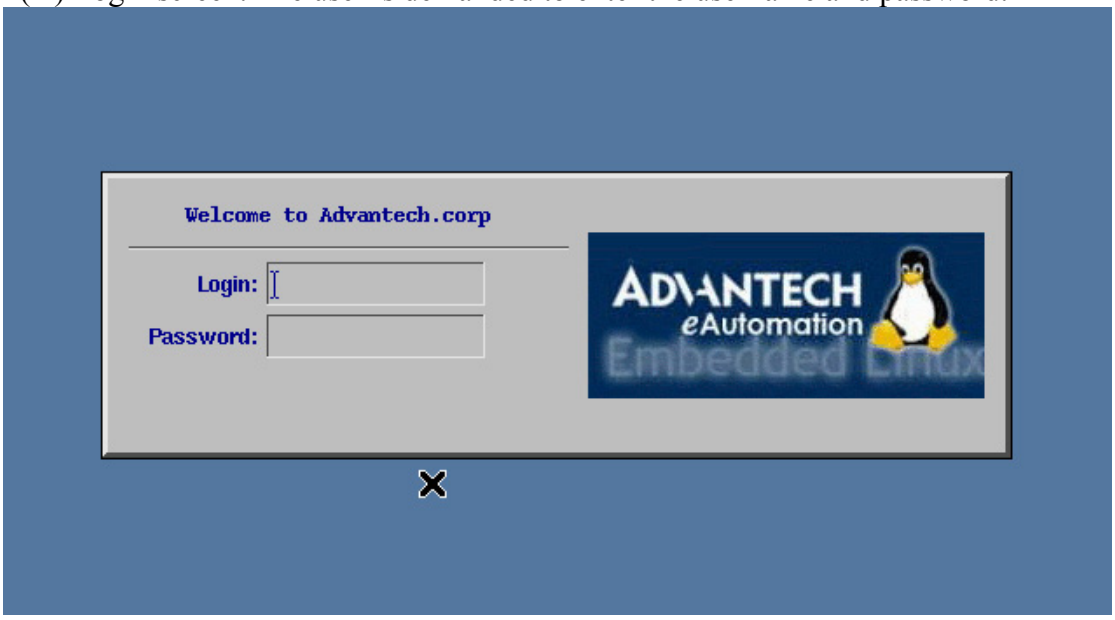


- Xpdf: An Adobe Acrobat viewer for open source code. It follows the GPL and is used for displaying PDF (Portable Document Format) files.

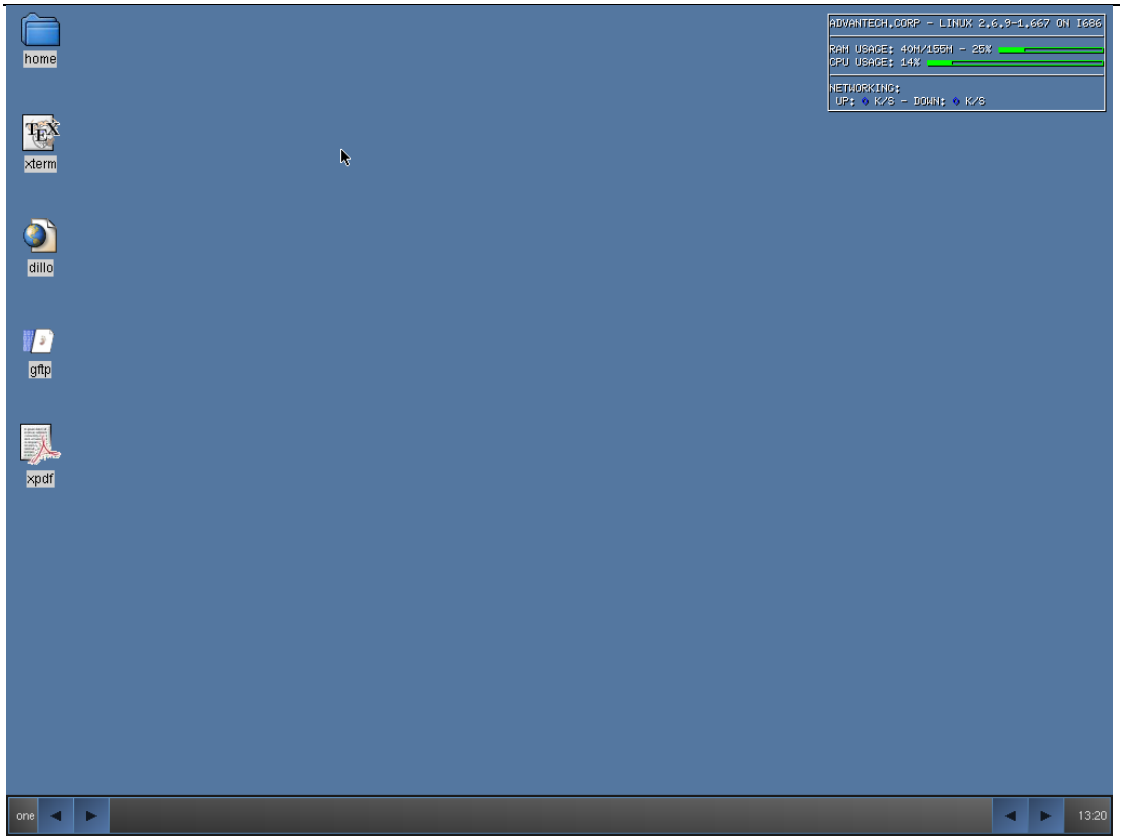


4.2 Startup process

(1) Login screen. The user is demanded to enter the username and password.



(2) Desktop environment.



4.3 TPC calibration for touch screen

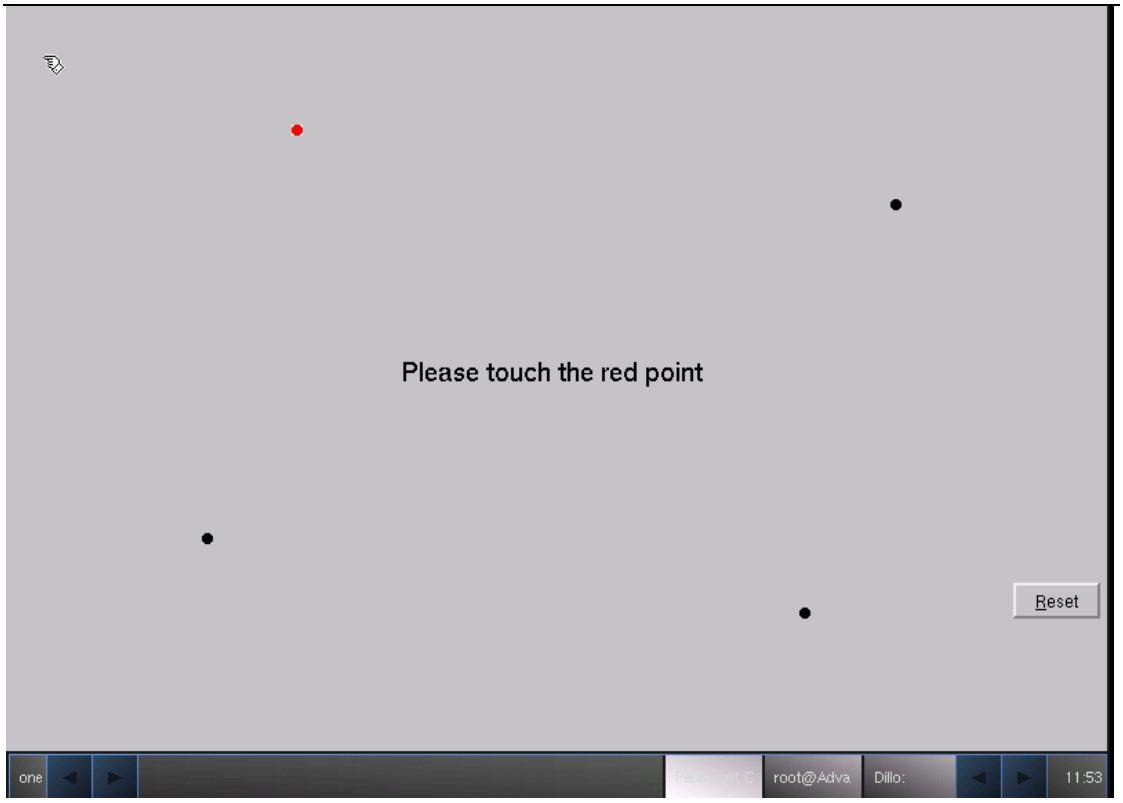
TPC calibration tools can be found under the directory /usr/local/pencal/. Every TPC should be calibrated before it is used. Follow the steps below:
Enter the calibration tools directory:

cd /usr/local/pencal

Perform the calibration procedure

./pencal-2.00

If the calibration procedure does not pop up in full screen, then it will be shown on the icon column at the bottom of the screen (Penmount …). Click the mouse button to open the calibration procedure as shown below:



Please follow the order the red dot appears and click the red dot (do not click by the mouse, or else the data will be incorrect) by a pen or other objects (do not click by the penpoint or keen objects in order to protect the touch screen). The user will be demanded to restart the system. Restart the TPC and the touch screen can be used.

Appendix

Advantech Linux 2.2 Driver Support List

UNO Family Device Driver Table

Device	adv-950	adv can	advsram	Advsetuart	advwdt/443	Advwdt/977	advwdt/627	dio2050	UNO-Isa DIO
2050	X					X		X	
2050E	X						X	X	
2052		X				X			
2052E		X					X		
2053						X			
2053E							X		
2058	X					X			
2058E	X						X		
2059	X					X			
2059E	X						X		
2160			X	X	X				
2170			X	X			X		
2176	X						X		X
2668	X				X				
2678	X						X		
3062			X	X	X				X
3062L				X	X				X
3072			X	X			X		X
3074			X	X			X		X

TPC Family Device Driver Table

Device	adv-950	advcan	advsram	advwdt/443	advwdt/977	advwdt/627
TPC-1261H	X					X

Installed with corresponding drivers, fully supported and tested.

Installed with corresponding drivers, but have not been tested yet.

Advantech Linux 2.2 Release Notes

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Built on 20061127

Installation-Related Notes

Advantech Linux 2.2(using kernel 2.4) is an embedded Linux developed for Advantech products and is a migration production from RedHat 9.0.Now it include two X server:tinyx and XFree86. The 2.4.20-8 kernel release is used in it.

It supports the Advantech eAutomation products, and the related drivers, such as Digital Input/Output, Watchdog, SRAM etc. These will be installed in the folder /usr/src/advantech, and loaded during the booting process.

Hardware Requirements

The following information represents the minimum hardware requirements necessary to successfully install Advantech Linux 2.2:

- CPU:

- Minimum: Pentium-class

- Recommended for text-mode: 200 MHz Pentium-class or better.

- Hard Disk Space (NOTE: Additional space will be required for user data):

- Minimum for text-mode: 40 MB

- Minimum for graphical: tinyx 50MB XFree86 65 MB

- Memory:

- Minimum: 64 MB

Note that the compatibility/availability of other hardware components (such as video and network cards) may be required for specific installation modes and/or post-installation usage.